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ABSTRACT

The Secretary's Commission on Achieving Necessary Skills (SCANS) was asked to examine the demands of the workplace and determine whether young people are capable of meeting these demands. Six panels were established to examine all manners of jobs from manufacturing to government employment and conduct in-depth interviews with workers in a wide range of jobs. After its investigation, SCANS reported to the Secretary of Labor, and also in an open letter addressed to parents, employers, and educators, that more than half of high school graduates leave school without the knowledge or foundation required to find and hold a good job. Further, SCANS recommended that (1) all American high school students develop a set of competencies and foundation skills; (2) the qualities of high performance that characterize America's most competitive companies must become the standard for all companies, be they large or small, local or global; and (3) the nation's schools be transformed into high-performance organizations in their own right. The report identifies five competencies and a three-part foundation of skills required in the workplace, and includes a description of the methodology and survey instrument used. Contains 13 references. (EMH)

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Skills: Onward Through the Fog

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Skills: Onward Through the Fog

An Abstract

Purpose: The purpose of this study is to (1) identify the essential skills that all students must acquire; (2) identify special skills that some students should acquire; (3) determine the perceived definition of skill by students, teachers, administrators and staff; (4) and to contrast the responses to the SCANS competencies.

Method: Questionnaire

Data: Presented in tabular form per question

Conclusions: The skills that all students must acquire support the SCANS Commission report. All people must be able to perform a skill in order to earn a living and be a productive member of the society. The skills that enable productivity are occupationally specific skills.

Authors: Bartlett, Jean, Sawma, Terry, Statz, Charles, & Vela, Jesse

SKILLS:
ONWARD THROUGH THE FOG

SKILLS DEFINITIONS:

A skill is defined as the ability gained by the practice of knowledge (Barnhart Dictionary, 1970). Skill is also defined as an ability to do things well with one's body or with tools. The types of skills are of a wide variety. Skills may be classified as basic, essential, and fundamental skills as well as higher level thinking skills. Generally, most people believe that a skill is something that one can do. *The International Encyclopedia of Education* states that basic skills are also known as tool subjects which would include reading, writing, and arithmetic. These tool subjects are used to learn from printed material, communicating through the written word, and solving quantitative problems. Reading, writing, and arithmetic are tools for learning both in and out of the school setting (Husen & Postlethwaite, eds., 1985).

The Secretary's Commission on Achieving Necessary Skills (SCANS) was asked to examine the demands of the workplace and whether our young people are capable of meeting those demands. The Commissions was directed to advise the Secretary of Labor on the level of skills required to enter employment and was further asked to:

- Define the skills needed for employment;
- Propose acceptable levels of proficiency;
- Suggest effective ways to assess proficiency; and
- Develop a dissemination strategy for the nation's schools, businesses, and homes.

The SCANS Commission established six special panels to examine all manners of jobs from manufacturing to government employment and conducted lengthy interviews with workers in a wide range of jobs.

The Secretary's Commission on Achieving Necessary Skills in an open letter, dated June 28, 1991, and addressed to parents, employers, and educators, presented its SCANS report. The SCANS report is the result of interviews with business owners, public employee's managers, union officials, and workers in various occupations to determine the skills employees need to have in order to get and keep a job. The message from everyone interviewed was the same across the country and in every kind of job.

> *"Good jobs depend on people who can put knowledge to work. New workers must be creative and responsible problem solvers and have the skills and attitudes on which employers can build."*

The Secretary of Labor and the members of the Commission on Achieving Necessary Skills (SCANS) examined the changes in the world of work and the implications of those changes for learning. The SCANS Commission published their findings and recommendations and how all schools prepare people for employment.

The Commission reported that for most of the 20th Century, America manufactured goods and products for world consumption. Workers designed and manufactured these goods without competition from other nations of the world. The American assembly line technology emphasized assembly-line discipline for workers. The world of work has changed. No longer will a strong back, the willingness to work, and a high school diploma enable a person to make a living in this world. Globalization of commerce and industry and the explosive growth of technology on the job have changed the world of work and the demands of its workers. These developments have not been reflected in how we prepare people for today's world or work. A well developed mind, a passion to learn, and the ability to put knowledge to work (application of knowledge) are the essential elements that all workers must possess for the economic well being of the country. If our schools do not prepare people with the skills required for employment,

American business and industry will not be able to compete in a global market. Just as America rose to the opportunities afforded by the great industrial era, America must also rise to the opportunities provided by the era of globalization and technology. The demands of business and industry must meet world class standards and so must its employees. Employers seek adaptability, the ability to learn, and team-learning in their employees. The change in the world of work and what is expected of all employees has profound implications for all educational institutions, educators, parents, and employers. The Commission reported that:

> *"More than half of our young people leave school without the knowledge or foundation required to find and hold a good job. Unless all of us work to turn this situation around, the young people, and those who employ them, will pay a very high price. Low skills lead to low wages and low profits. Many of these youth will never be able to earn a decent living. And, in the long run, this will damage severely the quality of life everyone hopes to enjoy."*

SCANS COMMISSION CONCLUSIONS:

1. All American high school students must develop a set of competencies and foundation skills if they are to enjoy a productive, full, and satisfying life.
2 The qualities of high performance that characterize our most competitive companies must become the standard for the vast majority of our companies, large, small, local and global.
3 The nations' schools must be transformed into high-performance organizations in their own right.

The Secretary's Commission on Achieving Necessary Skills describes what must be done to protect the future of American children, education, and the country. The report identifies five competencies and a three-part foundation of skills and personal qualities that are required in the

world of work. These eight SCANS skills represent the essential preparation for all students including those going directly to work out of high school and those planning to go to a higher education institution. All eight of the SCANS skills must become part of the school life for every student. The eight SCANS skills are integrated skills that all students must know. In the world of work, at any level, workers must be able to use the SCANS skills in an integrative and simultaneous manner to succeed and perform their job.

The Commission concluded that the most effective way of learning any skill is "in context", placing learning objectives within a real environment rather than insisting that students first learn in the abstract what they will be expected to apply.

The Five Competencies		
Resources:		*Identifies, organizes, plans, and allocates resources*
A.	*Time*	Selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules
B.	*Money*	Use or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives
C.	*Material and Facilities*	Acquires, stores, allocates, and uses materials or space efficiently
D.	*Human Resources*	Assesses skills and distributes work accordingly, evaluates performance and provides feedback

Information:	*Acquires and uses information*
A.	*Acquires and Evaluates Information*
B.	*Organizes and Maintains Information*
C.	*Interprets and Communicates Information*
D.	*Use Computers to Process Information*

Interpersonal:		*Works with others*
A.	*Participates as a Member of a Team*	Contributes to group effort
B.	*Teaches Others New Skills*	
C	*Serves Clients and Customers*	Works to satisfy customer's expectations
D.	*Exercises Leadership*	Communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies
E.	*Negotiates*	Works toward agreements involving exchange of resources, resolves divergent interests
F.	*Works with Diversity*	Works well with men and women from diverse backgrounds

Systems:		*Understands complex inter-relationships*
A.	*Understands Systems*	Knows how social, organizational, and technological systems work and operates effectively with them
B.	*Monitors and Corrects Performance*	Distinguishes trends, predicts impacts on system operations, diagnoses deviations in system performance and corrects malfunctions
C.	*Improves and Designs Systems*	Suggests modifications to existing systems and develop new or alternate systems to improve performance

Technology:		*Works with a variety of technologies*
A.	*Selects Technology*	Chooses procedures, tools or equipment including computers and related technologies
B.	*Applies technology to Task*	Understands overall intent and proper procedures for setup and operation of equipment
C.	*Maintains and Troubleshoots Equipment*	Prevents, identifies, or solves problems with equipment, including computers and other equipment

A Three-Part Foundation		
Basic Skills:		*Reads, writes, performs arithmetic and mathematical operations, listens and speaks*
A.	*Reading*	Locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules
B.	*Writing*	Communicates thoughts, ideas, information, and messages in writing; and creates documents such as letters, directions, manuals, reports, graphs, and flow charts

C.	*Arithmetic and Mathematics*	Performs basic computations and approaches practical problems by choosing appropriately from a variety of mathematical techniques
D.	*Listening*	Receives, attends to, interprets, and responds to verbal messages and other cues
E.	*Speaking*	Organizes ideas and communicates orally

Thinking Skills:		*Thinks creatively, makes decisions, solves problems, visualizes, knows how to learn, and reasons*
A.	*Creative Thinking*	Generates new ideas
B.	*Decision Making*	Specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative
C	*Problem Solving*	Recognizes problems and devises and implements plan of action
D.	*Seeing Things in the Mind's Eye*	Organizes, and processes symbols, pictures, graphs, objects, and other information
E.	*Knowing How to Learn*	Uses efficient learning techniques to acquire and apply new knowledge and skills
F.	*Reasoning*	Discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem

Personal Qualities		Displays responsibility, self-esteem, sociability, self-management, and integrity and honesty
A.	*Responsibility*	Exerts a high level of effort and perseveres toward goal attainment
B.	*Self-Esteem*	Believes in own self-worth and maintains a positive view of self
C.	*Sociability*	Demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings
D.	*Self-Management*	Assesses self accurately, sets personal goals, monitors progress, and exhibits self-control
E.	*Integrity and Honesty*	Chooses ethical courses of action

SCANS and Their Implications:

The SCANS Commission reports that educational reform has failed our students, schools, community, and nation. The Commission believes that a major reason for this is miscommunication. This miscommunication occurs between the business community and the schools. The attempts of business and industry to characterize the skills required of workers

have often been very general, focusing on human characteristics such as intelligence, reasoning, and promptness or focusing heavily on technical skill of a given occupation. The outcomes have been that the schools do not understand business and industry skill requirements. Industry believes that the schools should serve as their companies training institution. Consequently, the schools without any clear mandate from business and industry continue doing what they have been doing with the same systems and methodologies used over 100 years ago. The teacher as keeper of knowledge does not work in an expected group-learning environment. The student correctly identifies that preparation for the world of work is not the business of the schools when what they are doing in school bears little resemblance to what they will be expected to do in tomorrow's workplace. Many students believe the skills they will need in the workforce are not taught in school. They are learned by hands-on-experience at the place of employment. It matters little if the school is the local public high school or the University across the country. Schools are not providing the learning environment required for skills acquisition nor the skills required of tomorrow's workers.

The SCANS Commission contends that the five Competencies and the three-part Foundations are common skills required of all workers. The failure to associate "school work" with "real work" tautologically leads to the conclusion that "school" work is not "real". The task of learning is the real work of today at school, at the university, or on the 'job". The Commission recognizes the eight SCANS skills, as common skills required of all workers. These SCANS skills are required of all workers regardless if they are in the food service industry, general maintenance, medicine, education or law .... any occupation. One must take a broad interpretation of the competencies and fit them to every individual. For example, "organizes ideas and communicates" may not be possible for a deaf person. However,

organization and communication are expected skills of all people. "Discovering a rule or principle underlying the relationship between two or more [objects] and applies it when solving a problem" may equally apply to the worker cleaning trays in the local fast food burger restaurant and to the biotechnology researcher seeking the understanding between "marker" genes and operon theory or to the neurosurgeon learning a new surgical technique for nerve anastomosis. Designing quality into the product development-process empowers workers with the skills required in the workplace. The product development-process is the sum of the design of educational programs, contextual learning, collaborative learning, and facilitated learning. This process will demand relevant and meaningful education, student accountability and student responsibility for learning. It will also require the collaboration of the nation's businesses and educational communities along with clearly defined standards. Any state or national standards beg the development of standardized assessment tools in order to determine the efficacy of the model. Skills standards are meaningless without standardized assessment. SCANS skills are an historical illustration of the "skills that all students should acquire".

Some would shout that American students do poorly on standardized assessment criterion-reference tests not due to poor instruction but to curriculum neglect (Stotsky, S. 1998).

INTERVIEW DESIGN:

All members of the group agreed to ask all respondents the identical questions to minimize variables. Group members designed each of the interview questions. The first three questions are direct, asking the respondent to define "skill", identify the skills that all students should acquire, and identify the skills that some students should acquire. It was felt that if the questions were designed by asking respondents to select from a list of skills they felt were appropriate responses to the questions or provided with multiple definitions of "skills" that the responses

would be as limiting as the choices. Therefore, the group decided to let the interviewee respond to a non-limiting set of questions. Although it may be more complex to categorize the varied responses to the posed questions, it is the feeling of the group that the essence of the question is retained when choices are not provided.

Selection of Interview Candidates:

The members of the group decided that the "appropriate professionals" to respond to the question, "What Skills Should All Students Acquire?" and "What Special Skills Should Some Students Acquire?", would include K-12 and post secondary students, faculty, and administrators. Each member of the group personally asked each interview question of a appropriate candidates. If the person being interviewed asked for interpretation of any question, the question was read verbatim so as not to introduce another variable.

Interview Candidates and Demographics:

Persons interviewed include students, faculty, and administrators in both K-12 and post secondary education from Mission CISD, Mission Texas, Temple College, Temple, Texas, North Harris Montgomery Community College District colleges and administrative offices, Houston, Texas, and Hildebrandt Intermediate School, Klein Independent School District, Klein, Texas. The broad demographics includes a large suburban ISD and a rural, boarder-town ISD as well as a major metropolitan multiple college district and a more rural, single college community college.

Interview Candidates and Demographics:

Respondents included middle and high schools students, faculty at both public schools and community colleges, and staff and administrators at both public schools and community colleges. The geographic locations of the respondents represent a broad geographic area of the state and include Mission ISD, Klein ISD, Temple College, and North Harris Montgomery Community College District. A total of twenty-nine (N=29) interviews were conducted. The respondents were classified into one of five categories as follows:

CLASSIFICATION	NUMBER (N)
Community College Student	9
High School Student	9
Faculty	5
Administrator/Staff	5
Parent	1
Total	**29**

Conducting the Interviews:

The interviewer recorded each respondent's name, title, affiliation, year's experience in present position, and gender. Original questionnaires are provided in Appendix A. Respondents were not provided with alternate interpretations of any of the questions asked. If any respondent asked for a clarification of any question, the interviewer repeated the question. All interviewers read each question to individual respondents and recorded each response on the questionnaire form. The interviews were conducted between March and April 1998.

Questionnaire Responses:

Question 1: What is a skill?

The classification of respondents into one of the five categories may be artificial. However, it was the feeling of the group that we might want to identify respondents by classification potentially reflecting educational level, and analyze the responses to question 1, "What is a skill?" on the basis of respondent classification. Responses to the question "What is a skill?" did not follow any classification scheme. Virtually every respondent, whether high school student, community college student, faculty, or administrator, agreed that a skill is "an ability to do something". The responses may have differed in verbiage and eloquence of language, however, they all captured the same essence. Individual responses are provided in the Appendix of this report. The responses by respondent classification and relative percent for each are provided in Table I.

Table I: Respondent Classification

Essence of Response	Community College Student	High School Student	Faculty (ISD)	Administrator or Staff	Parent
An ability to do something	9 (100%)	9 (100%)	5 (100%)	5 (100%)	1 (100%)

Question 2: What Skills Should All Students Acquire?

Twenty respondents (70%) from four classifications stated that reading was a skill that all students should acquire. Reading was the most popular response to the question "What skills should all students acquire" followed by writing (52%), communication skills (31%), and basic math skills (31%). Forty-five percent of those who stated that reading is essential skill that all

students should acquire are respondents from high school. It is interesting that only 15% of the educational administrators and/or professional staff felt that reading was an essential skill that all students should acquire. Forty percent of the high school student respondents (6/15) felt that writing is an essential skill that all students should acquire. One of the more curious statistics is that none of the high school faculty mentioned communication skills as an essential skill that all students should acquire.

The top five skills that all students should acquire, as identified by the respondents, are reading, writing, communication, mathematics, and interpersonal skills. Interestingly, all five of the skills identified by respondents as "skills that all students should acquire" are SCANS skills.

Only one respondent (3%) identified "Learning How to Learn" as an essential skill that all students should acquire. Learning How to Learn is one of the Three Part Foundation SCANS Skills and is considered fundamental to academic success by many educators (SCANS, 1991). The respondents ranked "learning how to learn" equally with "talking", "typing" and "eating" skills.

The skills identified by all respondents, respondent classification, number of respondents, and percent are provided in Table II.

Table II. Skills Classification by Respondent to Question 2

Question # 2: What Skills Should All Students Acquire?

Skills Classification by Respondent	Community College Student N=9	High School Student N=9	Faculty (ISD) N=5	Admin/ Staff N=5	Parent N=1	Total N and Percent	
Reading	4	9	4	3		**20**	**70%**
Writing	4	6	3	2		**15**	**52%**
Communicate	3	2		4		**9**	**31%**
Basic Math	2	1	3	3		**9**	**31%**
Interpersonal Skills	2	1	2	2		**7**	**24%**
Computer	1	2		2		**5**	**17%**
Listening	2		1	1	1	**5**	**17%**
Logical Thinking	2			1		**3**	**10%**
Behavior Skills			1	1	1	**3**	**10%**
Self-discipline	1			1		**2**	**7%**
Responsibility	1			1		**2**	**7%**
Locating Resources	1			1		**2**	**7%**
Make Good Choices					1	**1**	**3%**
Work Ethic				1		**1**	**3%**
Time Management				1		**1**	**3%**
Learn How to Learn				1		**1**	**3%**
Conflict Resolution				1		**1**	**3%**
Coping Skills		1				**1**	**3%**
Be Creative		1				**1**	**3%**
Be Imaginative		1				**1**	**3%**
Talk		1				**1**	**3%**
Count Money		1				**1**	**3%**
Typing		1				**1**	**3%**
Eat	1					**1**	**3%**

Question # 3: What Skills Should Some Students Acquire?

The most common response to the question "What skills should some students acquire?" was classed with vocational skills. Thirty-one percent of all respondents listed vocational skills as a skill that some students should acquire, followed by Computer Skills (10%), Manners (7%) and Leadership Skills (7%). The classification of skills listed in response to the question "What

skills should some students acquire?" and the respondent classification, number and percent of each response are presented in Table III.

Table III: Skills Classification by Respondent to Question 3

What skills should some students acquire?

Skills Classification by Respondent	Community College Student N=9	High School Student N=9	Faculty (ISD) N=5	Admin/ Staff N=5	Parent N=1	Total N and Percent	
Vocational Skills	3	3		3		9	31%
Computer Skills	2	1				3	10%
Manners		1	1			2	7%
Leadership Skills		2				2	7%
Communication					1	1	3%
Work with Others					1	1	3%
Life Skills			1			1	3%
Personal Hygiene			1			1	3%
Make Choices			1			1	3%
Compromising Skill		1				1	3%
Listen		1				1	3%
Think		1				1	3%
Behavior Skills		1				1	3%
Athletic Skills		1				1	3%
Higher Levels 3R's			1			1	3%

The skills listed by some respondents that were not classified include "Depends on how far in life they want to go"; "Skills that others don't need"; "This is not a good question"; "Skills are age dependent"; and "It's a matter of ability and understanding".

Question # 4: "Should Skills be Job Specific?"

The respondents to this question were equally split. No clear consensus can be discerned. However, the respondents may have answered this question based on their occupation and the

distance from preparing students for the workplace. Community college students enrolled in workforce education programs believe that skills are job specific. This response is expected if one considers that these students are being prepared for entry into the workforce. Conversely, the faculty at the ISD are all teachers in a middle school and are much more concerned with foundation skill acquisition of their students. They are more remote from preparing students for the workforce and therefore it is not surprising that all these middle school teachers believe that the skills they must teach are not job specific.

Table IV: Should Skills be Job Specific?

Skills Classification by Respondent	Community College Student N=9	High School Student N=9	Faculty (ISD) N=5	Admin/ Staff N=5	Parent N=1	Total N and Percent	
Yes	8	5	0	1	0	**14**	**48.3%**
No	1	4	5	4	1	**15**	**51.7%**

When respondents were asked to explain their answer to this question, some of the following comments were recorded. For a complete list of responses see the questionnaires in the Appendix A.

Responses to Question 4:

Should Skills be Job Specific? Explain

Yes:	No
Some things you need to do away from work.	Not until you go to college.
Must have the skills to get the job you want.	Even if it is not for a particular job, one must learn to interact with others.
Why learn anything unless it is job-related.	It depends on age.
We expect different skills for different occupations.	One must first figure out what his job is to be and then he must learn other skills to do that.
We do not know what they will be doing.	I think the skills are essential for every-day

Employers should do that.
Certain jobs require certain skills.
living.
Decisions are different at different ages.

Question # 5: "Have you Heard of Skill Standards?"

Surprisingly, nearly sixty percent of all respondents had not heard of skill standards. Table V presents the data by classification.

Table V: Have you Heard of Skill Standards?

Skills Classification by Respondent	Community College Student N=9	High School Student N=9	Faculty (ISD) N=5	Admin/ Staff N=5	Parent N=1	Total N and Percent	
Yes	5	0	3	4	0	**12**	**41%**
No	4	9	2	1	1	**17**	**59%**

Question # 6: "What is the origin of Skill Standards?"

Of those respondents who indicated they had heard of skill standards, few could accurately identify any specific origin of any skill standards. Five respondents identified the "Government" as the origin of skill standards; three respondents identified the "State" as the origin of skill standards; and two respondents identified the "Society" as the origin of skill standards. Only two respondents of twelve who had heard of skill standards identified SCANS and the Skills Standards Board. Five of the high school respondents identified the ASE (Automotive Service Excellence) as the origin as skill standards and undoubtedly are enrolled in the automotive technology program at Temple College.

Discussion:

The respondents to the questionnaire were not randomly selected within Texas. The respondents were conveniently selected by each member of the group from their respective geographical locations and place of employment. Consequently, any conclusions inferred by the data from this sample might not reflect the conclusions of the population. Furthermore, the composition of any single "respondent classification" is not random. For example, the respondent classification group "community college students" is all from Temple College and the "high school student" group composition is exclusively from Mission High School located in the Texas Valley.

Clearly, knowledge and skills are not identical. Skill is defined by this group as the "ability to do something". Skill is the application of knowledge. Therefore, the essence of a skill lies in the application of related knowledge through techniques, processes, and procedures. *Techne* (from the Greek) means "to fashion or produce". The word "technology" is derived from *techne* and any technology is the application of knowledge to produce or manufacture something. Technicians are those persons who apply knowledge. All occupations require the application of knowledge and therefore require specific skills. Further, the SCANS Commission states that:

> "Learning in order *to know* must never be separated from learning in order *to do* Knowledge and its uses belong together."

The Occupational Network or O-NET also separates knowledge, skills, and ability domains. O-Net is a federal database that links occupations to skills and to America's Job Bank. O-NET has the ability to match individual skills with occupational titles and available jobs based on the knowledge, skills and abilities required for any occupation.

Many state and federal skills standards have been written for specific occupations that define skills required for that profession. The national skills standards movement is an outgrowth of business and industry's demands for a skilled workforce. Essentials skills have long been characteristic of many occupations and educational programs including Law, Medicine, Allied Health and Education. Many of these professions require the demonstrated application of knowledge in educational programs termed "internships". Medical students become medical interns during their senior year and must successfully demonstrate their application of knowledge (skills). How are these professions any different than those of mechanics, chefs, brokerage clerk, secretaries, mold maker, cartoonist, police officer, assembly worker, casket inspector, or any other occupation listed in the *Dictionary of Occupations*? The difference is not in the knowledge and skills that all people must know but rather in the knowledge and skills that some people must know. The surgeon who has the skills to remove your ruptured appendix does not have the skills of the auto mechanic to repair your transmission. The surgeon is helpless to repair the transmission and never ask the auto mechanic to perform surgery. So we see the paradox. All occupations must have unique different skills specific to their profession.

The answer to the question "What skills should all students acquire?" must include all skills that are common to all professions. The skills that all students must acquire cannot be the uniquely different skills and must have application across all professions. It must be recognized that all students do not have to acquire the same level of proficiency for any skill but must be minimal proficient in each skill to function in the society. The culture of a society determines the skills that all students must acquire and these skills may differ from one culture to another.

Therefore, the group defines the skills that all students in American culture must acquire include:

- Communication Skills
- Reading Skills
- Writing Skills
- Interpersonal Skills
- Learn How To Learn Skills
- Problem Solving Skills
- Organizational Skills
- Social Skills
- Basic Mathematics Skills

When respondents were asked the question "what skills should all students acquire" the top five skills they identified were reading, writing, communicating, basic math, and interpersonal skills. Ironically, these are also included in the SCANS Foundation Skills.

When asked the question "what skills that some students should acquire?", the top response was "vocational skills". All other responses to this question varied widely and a clear conclusion cannot be inferred. Obviously, the respondents felt that the skills that some students should acquire are occupational skills and that these skills differ from occupation to occupation. Likewise, O-NET, TEKS, state standards boards, federal standards boards, national and state accrediting, certifying, and licensing agencies identify specific skills essential to the performance of specific occupations and, furthermore, that these essential occupational skills must be demonstrated before ascribing validity to degrees, certificates, diplomas, licenses, and permits to practice the specific occupation.

The group contends that the skills that some students should acquire are occupationally dependent skills. If one is to practice surgery, one must acquire surgical skills through practice. If one is an auto mechanic, one should acquire auto mechanic repair skills. In each occupation, the skills required are interdependent upon the knowledge base and the application of this knowledge. When the application of the knowledge becomes an art, one may be said to be skillful in the craft.

Skill is the application of knowledge. All occupations require the application of knowledge. The applied professions are all professions. All occupations are professional since all occupations require unique skills. Let us eliminate the artificial separation between the "professional" occupations and the "technical occupations". All are require unique applied skills. All occupations require specific skills and professional competence.

In a recent e-mail on the VOCNET@CMSA. BERKELEY>EDU listserve jstarr posted:

> *I recently read Lisa Whitley's book about "Life Long Learning Through Vocational Education". Do vocational educators truly believe that their education is more important than a college education?"* [jstarr@ecentral.com]

The response from Joe.Crowley@chariho.k12.ri.us is appropriate. It reads:

> *A simple response to your query would be "Yes." However, since you asked the question, you probably need a bit more. Several questions; What makes you think there is a dichotomy? Medical schools, engineering schools, law schools, teacher colleges, and business schools are all vocational schools.*
>
> *What single activity will consume the greatest portion of your adult life? For most of us, the answer is work. Between getting prepared to go, going, doing, and going home, we usually spend 50-60 hours per week involved in work. Does it not seem prudent to give this aspect of your life the most attention when doing life preparation? What makes you think we should nor value the training of plumbers at the same level as philosophers? It is said the society which does not have neither theories nor pipes will not hold water. Is a $10 per hour, college graduate, bookstore assistant manger better off than a $22 per hour high school trained carpenter? There is research which indicates 25% of new community*

> *college enrollees are four year graduates who need job skills. There is additional research which indicates vocational school graduates who pursue the career for which they were trained will out-earn four year college graduates with no job skills (believers in the liberal arts myth).*
>
> *Should our comprehensive high schools be proud of the fact that they are preparing virtually all of their graduates for four year colleges (most suburban communities send 70% to 85% of their graduates into postsecondary education)? Three out of ten never make it to the second year and only about 25% achieve four year degrees. We generate thousands upon thousands of college drop-outs each year with no job skills saddled with debt (both them and their parents) and for what ... a few useless credits in "General Studies"?*

The point must be that there are basic skills that all persons need to know. They include reading, writing, learning how to learn, interpersonal skills, communication, problem solving skills, organizational skills, and basic mathematics. Each of us must learn these skills, perhaps at different proficiency levels, but learn them we must. All persons must also acquire occupationally specific skills in order to earn a living. These occupationally specific skills are unique to a chosen profession. Any occupation, when practiced skillfully is a profession. The surgeon is as professional as the auto mechanic, as the plumber, as the stockbroker. We must learn to value each occupation. Neither is more important than another.

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